

09/845178

CJC

Patent

Case No.: 56373US002

32692

Customer Number



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: LU, ZHONGHUA

Patent No.: 6964828

Group Art Unit: 1746

Dated: November 15, 2005

Examiner: M. Wills

Title: IMPROVED CATHODE COMPOSITIONS FOR LITHIUM-ION BATTERIES

REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 CFR § 1.322

Commissioner for Patents
Office of Publication
Attn: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

MAY 03 2006
Date

Lydia M. Cahill
Signed by: Lydia M. Cahill

Dear Sir:

It is respectfully requested that a Certificate of Correction be issued in connection with the above-identified patent. The required text is submitted on the attached form.

Because the listed errors first occurred in the printed patent, and are not due to Applicant's mistake, no fee is required in connection with this Certificate of Correction.

Respectfully submitted,

May 2, 2006
Date

By: *Lucy C. Weiss*
Lucy C. Weiss, Reg. No.: 32,834
Telephone No.: 651-733-1189

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833

Certificate
MAY 10 2006
of Correction

MAY 10 2006

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 1 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page

(56) -- -- Insert the following:

2001/0010807	8/2/01	Matsubara
2002/0012843	1/2002	Munakata et al.
2002/0086210	11/8/01	Naruoka et al.
2002/0150530	10/17/02	Gao et al.
2002/053663	5/9/02	Ito et al.
2003/0022063	1/2003	Paulsen et al.
2003/3082452	5/1/03	Ueda et al.
4,567,031	1/28/86	Riley
5,264,201	11/23/93	Dahn et al.
5,292,601	3/8/94	Sugeno et al.
5,370,948	12/6/94	Hasegawa et al.
5,393,622	2/1995	Nitta et al.
5,478,671	12/26/95	Idota
5,478,675	12/26/95	Nagaura et al.
5,521,027	5/28/96	Okuno et al.
5,525,443	5/11/96	Okuno et al.
5,531,920	7/2/96	Mao et al.
5,565,688	10/15/96	Hayashi
5,589,300	12/31/96	Fauteux et al.
5,609,975	3/11/97	Hasegawa et al.
5,626,635	5/6/97	Yamaura et al.
5,742,070	4/21/98	Hayashi et al.
5,770,173	6/23/98	Nitta et al.
5,783,332	7/21/98	Amine et al.
5,858,324	1/12/99	Dahn et al.

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

MAY 10 2006

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 2 of 8

PATENT NO.: 6964828

DATED: November 15, 2005

FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

5,900,385	5/4/99	Dahn et al.
5,911,920	6/15/99	Hasezaki et al.
5,981,445	11/9/99	Kirchnerova et al.
5,993,998	11/30/99	Yasuda
6,017,654	1/25/00	Kumta et al.
6,030,726	2/29/00	Takeuchi et al.
6,040,090	3/21/00	Sunagawa et al.
6,077,496	6/20/00	Ito et al.
6,103,422	8/15/00	Kanai
6,168,887	1/2001	Dahn et al.
6,214,493	4/10/01	Bruce et al.
6,270,925	8/2001	Takada et al.
6,333,128	12/2001	Sunagawa et al.
6,361,756	3/26/02	Gao et al.
6,368,749	4/2002	Yanai et al.
6,372,385	4/2002	Kweon et al.
6,521,379	2/2003	Nishida et al.
6,551,744	4/22/03	Ohzuku et al.
6,589,499	7/8/03	Gao et al.
6,589,694	7/8/03	Gosho et al.
6,620,400	9/16/03	Gao et al.
6,660,432	12/9/2003	Paulsen et al..
6,677,082	1/13/2004	Thackeray et al.
6,680,143	1/20/2004	Thackeray et al.

JP2822659		Japan
JP05-067466	3/19/1993	Japan
JP05-182667	7/23/1993	Japan
JP05-198301	8/6/1993	Japan
JP05-283077	10/29/1993	Japan
JP06-275264	9/30/1994	Japan

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

NOV 15 2005

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 3 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

JP06-275269	9/30/1994	Japan
JP07-134985	5/23/1995	Japan
JP07-235291	9/5/1995	Japan
JP07-235292	9/5/1995	Japan
JP08-171935	7/2/1996	Japan
JP08-315819	11/29/1996	Japan
JP10-188982	7/21/1998	Japan
JP2000-173599	6/23/2000	Japan
JP2000-173667	6/23/2000	Japan
JP2000-195514	7/14/2000	Japan
JP2000-231919	8/22/2000	Japan
JP2000-323123	11/24/2000	Japan
JP2000-323142	11/24/2000	Japan
JP2000-327339	11/28/2000	Japan
JP2001-052702	2/23/2001	Japan
JP86055747	3/31/1980	Japan
JP3079382		Japan
JP2668678		Japan
JP2561556		Japan
JP2699176		Japan
JP8-213015	8/20/1996	Japan
JP 10-1065652		Japan
2001-146426		Japan
2000-268821		Japan
3197763		Japan
8-37007	1996	Japan
2000-277151		Japan
2000-223157	8/11/2000	Japan
2000-294242	10/20/00	Japan
2000-294240		Japan

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

MAILED 1000

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 4 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

2002-063900	2/28/2002	Japan
EP1 117 145	7/18/2001	EPO
EP 0 501 187	4/17/1996	EPO
EP 0 903 796	3/24/99	EPO
0 468 942 B2	12/1/99	EPO
WO00/23380	4/27/00	PCT
WO 97/26683	7/24/97	PCT
0 813 256	12/17/97	EP
0 944 125	9/22/99	EP
2002/042813	2/8/02	Japan
1 189 296 A2	3/20/02	EP
WO 02/40404A1	5/23/02	PCT
2000/223122	8/11/00	Japan
11-364156	12/24/99	Japan

Numata, K. et al., *Preparation and electrochemical properties of layered lithium-cobalt-manganese oxides*, Solid State Ionics, 118(1999) pp. 117-120.

Numata K. et al., *Synthesis of Solid Solutions in a System of $\text{LiCoO}_2\text{-Li}_2\text{MnO}_3$ for Cathode Materials of Secondary Lithium Batteries*, The Chemical Society of Japan, (1997), pp. 725-726.

Numata K. et al, *Synthesis and characterization of layer structured solid solutions in the system of $\text{LiCoO}_2\text{-Li}_2\text{MnO}_3$* , Solid State Ionics 117 (1999) pp. 257-263.

Armstrong and Bruce, "Synthesis of layered LiMnO_2 as an electrode for rechargeable lithium batteries," Nature, 1996, 381:499-500.

Dahn et al., "Structure and Electrochemistry of $\text{Li}_2\text{Cr}_x\text{Mn}_{2-x}\text{O}_4$ for $1.0 \leq x \leq 1.5$," J. Electrochem. Soc., 1998, 145(3):851-859.

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

6964828 41 20051115

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 5 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Delmas et al., "Soft chemistry in A_xMO_2 sheet oxides," Revue de Chimie Minérale, 1982, 19:343-351.

DeSilvestro, "Pacific Lithium Limited – Novel layered cathode materials for advanced lithium ion batteries," presented at May 2000 International Li Battery Conference, Como, Italy

Hill and Howard, "Peak Shape Variation in Fixed-Wavelength Neutron Powder Diffraction and its Effect on Structural Parameters Obtained by Rietveld Analysis," J. Appl. Cryst., 1985, 18:173-180

Naruoka et al., "Development of $Li_{1-x-y}Co_xMn_yO_2$ System Positive Active Material for Lithium Ion Cells," GS News Technical Report, 2000, 59(2):13-17 (Translation attached)

Neudecker et al., "Lithium Manganese Nickel Oxides $Li_x(Mn_yNi_{1-y})_{2-x}O_2$," J. Electrochem. Soc., 1998, 145(12):4160-4168.

Paulsen and Dahn, "O₂ Structure $Li_{2/3}[Ni_{1/3}Mn_{2/3}]O_2$: A New Layered Cathode Material for Rechargeable Lithium Batteries," J. Electrochem. Soc., 2000, 147(3):861-868.

Rossen et al., "Structure and electrochemistry of $Li_xMn_yNi_{1-y}O_2$ " Solid State Ionics, 1992, 57:311-318

Wiles and Young, "A new computer program for Rietveld analysis of X-ray powder diffraction patterns," J. Appl. Cryst., 1981, 14:149-151. -- -- therefor.

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

11/15/05 11:05

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 6 of 8

PATENT NO.: 6964828

DATED: November 15, 2005

FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page

(56) Line 33, delete "Composition" and insert - - Compositions - -, therefor.

Line 33, after "Ion" insert - - Batteries - -.

Page 2

Line 9, delete "for" and insert - - of - -, therefor.

Column 4

Line 34, delete " $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ " and insert - - $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ - -, therefor.

Line 35, delete " $\text{Mn}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ " and insert - - $\text{Mn}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ - -, therefor.

Line 37, delete " $\text{LiOH} \cdot \text{H}_2\text{O}$ " and insert - - $\text{LiOH} \cdot \text{H}_2\text{O}$ - -, therefor.

Line 46, delete " $\text{LiOH} \cdot \text{H}_2\text{O}$ " and insert - - $\text{LiOH} \cdot \text{H}_2\text{O}$ - -, therefor.

Column 5

Line 53, after "parameters." insert - - An asterisk means "not tested." - -.

Column 6

Line 27, after "parameters." delete "An asterisk means "not tested".".

Column 8

Line 52, delete " $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ " and insert - - $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ - -, therefor.

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

000001

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 7 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 8

Line 53, delete "Mn(NO₃)₂·4H₂O" and insert - - Mn(NO₃)₂·4H₂O - -, therefor.

Line 53-54, delete "Co(NO₃)₂·6H₂O" and insert - - Co(NO₃)₂·6H₂O - -, therefor.

Line 55, delete "LiOH·H₂O" and insert - - LiOH·H₂O - -, therefor.

Column 9

Line 55, in Claim 1, after "(a)" delete "0" and insert - - 0.083 - -, therefor.

Line 57, in Claim 1, after "proviso that" insert - - (i) M¹ includes nickel, (ii) - -.

Line 58, in Claim 1, after "and" insert - - (iii) - -.

Column 10

Line 4, in Claim 2, after "M¹" delete "is" and insert - - further includes an element - -, therefor.

Line 4, in Claim 2, after "consisting of" delete "Ni,".

Line 8, in Claim 3, delete "0" and insert - - 0.083 - -, therefor.

Line 9, in Claim 3, after "proviso that" insert - - (i) M² includes nickel, (ii) - -.

Line 10, in Claim 3, after "and" insert - - (iii) - -.

Line 16-17, delete "4. A cathode composition according to claim 3 wherein 0.083<y<0.5.".

Line 21-22, delete "7. A cathode composition according to claim 6 wherein M² is Ni.".

MAILING ADDRESS OF SENDER:

**OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427**

PATENT NO. 6964828

No. of add'l copies: - 0 -
@ 50¢ per page

No add'l copies

2006

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 8 of 8

PATENT NO.: 6964828
DATED: November 15, 2005
FIRST NAMED INVENTOR: LU, ZHONGHUA

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10

Line 25, in Claim 8, delete "0" and insert - - 0.083 - -, therefor.

Line 26, in Claim 8, after "proviso that" insert - - (i) M^3 includes nickel, (ii) - -.

Line 27, in Claim 8, after "and" insert - - (iii) - -.

Line 34-35, delete "9. A cathode composition according to claim 8 wherein $0.083 < y < 0.5$."

Line 40-41, delete "12. A cathode composition according to claim 11 wherein M^3 is Co."

Line 43, in Claim 13, delete " $0 < y < 0.5$," and insert - - $0.083 < y < 0.5$, with the proviso that (i) - -, therefor.

Line 43, In Claim 13, after "chromium," delete "and" and insert - - (ii) - -, therefor.

Line 45, In Claim 13, after " M^4 ," delete "and" and insert - - (iii) M^4 or M^5 includes nickel, and (iv) - -, therefor.

Line 52-53, delete "14. A cathode composition according to claim 13 wherein $0.083 < y < 0.5$."

Line 65, in Claim 19, delete "cathodes." and insert - - cathode. - -, therefor.

MAILING ADDRESS OF SENDER:

PATENT NO. 6964828

OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
3M CENTER - P.O. BOX 33427
SAINT PAUL, MINNESOTA 55133-3427

NOV 10 2005
No. of add'l copies: - 0-
@ 50¢ per page

NOV 10 2005
No add'l copies